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ABSTRACT

At the national level there is growing agreement that direct instruction in higher order thinking skills should be a major educational focus. The concern for teaching thinking is also reflected at the local level. To satisfy this growing awareness and perceived need, a number of programs have been developed. Given the widespread interest in teaching thinking and the increasing number of programs to satisfy that interest, it could be assumed that the incidence of direct instruction in thinking at the classroom level would be rapidly increasing. However, the implementation of thinking skills programs appears to be a slow process, with many hurdles to overcome. Barriers to the implementation of thinking skills instruction--including a narrow view of curriculum, a narrow view of assessment, and involvement of non-educator groups in pedagogical decisions--should be addressed at the policy level. A curriculum which included the teaching of thinking would necessarily have a balance among factual content objectives, metacognitive objectives, and cognitive objectives. Those in positions of authority at the local, state, and national levels should mandate that assessment techniques should not be comprised primarily of objective, quantitative measures. Instead, more holistic and qualitative measures must be legitimized within education. Finally, distinctions as to the domain of responsibility of educators versus non-educators must be established and articulated at all policy levels. (Twenty-two references are attached.) (MM)

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# POLICY CONSTRAINTS TO THE TEACHING OF THINKING

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MID-CONTINENT REGIONAL EDUCATIONAL LABORATORY

# POLICY CONSTRAINTS TO THE TEACHING OF THINKING

by

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At the national level there appears to be growing agreement that direct instruction in higher order thinking skills should be a major educational focus. For example, the need for teaching thinking has been highlighted by such prominent education organizations as the College Board (1983) and the Education Commission of the States (1982). Such widely read education journals as Educational Leadership and Review of Educational Research have devoted entire issues to the topic.

The concern for the teaching of thinking is also reflected at the local level. For example, the desire to learn strategies and techniques for the teaching of thinking consistently shows up at the top of the list on surveys of teacher preferences for in-service training.

To satisfy this growing awareness and perceived need, a number of programs have been developed. For example, in a recent edited work Costa (1985) identified over 30 different approaches currently proposed for the teaching of thinking. One would assume that given the widespread interest in teaching thinking and the growing number of programs to satisfy that interest the incidence of direct instruction in thinking at the classroom level would be rapidly increasing. However, this does not appear to be the case. Rather, the implementation of thinking skills programs appears to be a slow and laborious process with many hurdles to overcome if it is to be more than just another "frill" as Bereiter (1984) has suggested.

It is my assertion that there are a number of barriers to the implementation of thinking skills instruction--barriers which can and should be addressed at the policy level. They include: 1) a narrow view of curriculum, 2) a narrow view of assessment and 3) involvement of non-educator groups in pedagogical decisions. We will consider each briefly.

## A NARROW VIEW OF CURRICULUM

The first of the barriers to instruction in higher order thinking skills is the current narrow conceptualization of curriculum. Presseisen (1985) notes that the most common curricular debate is over which content should be covered--what factual, subject matter is essential for students to learn. Unfortunately, an emphasis on teaching factual information is not consistent with the changing nature of society as described by Naisbitt (1982) and Schwartz and Ogilvy (1979) and the effects of that change on the types of knowledge students must possess for success in the "marketplace." Specifically the student of tomorrow (and, indeed, today) must possess not only factual knowledge but also a broad range of metacognitive and cognitive strategies to process and utilize factual information.

Metacognitive strategies are those which provide the learner with an awareness and control of the task and an awareness and control of self. Awareness and control of the task involves such factors as a clear goal or subgoal, continual monitoring of progress toward the goal or subgoal, correcting for ineffective behavior, identifying alternative cognitive strategies and selecting the most effective strategy at a given point in time. For example, a student engaged in metacognition while reading might ask herself "What is my purpose in reading" Am I reading for detail or am I trying to get the gist of the information?" Based on the answers to these and similar questions she would identify a number of appropriate cognitive strategies. If reading for detail she might consider underlining important information or using a colored pen to highlight important facts. If reading for the overall gist of information she might consider using a semantic web or some other type of graphic organizer to pattern the information.

Alternative strategies identified, the student would select that which appeared to be best suited for the task. As she progressed she would occasionally remind herself of the goal and assess the effectiveness of her actions ("Should I

pick up my pace since I only have an hour to do this?") When the task was completed she would assess the effectiveness of her actions identifying learning tactics that might be altered or dropped in the future.

Metacognition also involves knowledge and control of self. Here the learner monitors such things as her level of attention and engagement and her attitudes about the task. For example, if the student recognized that her attention and engagement were waning, she might actively involve herself in a process to stimulate a new energy base. This would include an assessment of her attitudes about the task. Weiner (1972) has noted that attitudes are the backdrop within which one operates. Negative attitudes beget ineffective behavior; positive attitudes provide a climate in which effective behavior can occur. While engaged in metacognition, the student would attempt to replace negative attitudes with those which are most positive. For example, if the students noticed she had an attitude that the task was of little value, she might consciously try to find something of value in the task. If she noticed that she had an attitude that she could not perform the task, she would try to elicit more positive "self talk" asserting that she could perform the task.

According to McCombs (1984) the teaching of metacognitive strategies can be an educational breakthrough, providing for some students a vehicle to unlock the previously closed door to learning. Equally as important to these students is direct instruction in cognitive strategies.

Cognitive strategies are fairly specific to a given task. For example, a chess player has a vast array of cognitive strategies for specific game situations, a mathematician balancing an algebraic equation has a set of specific cognitive strategies. Anderson (1983) states that cognitive strategies involve 1) factual or declarative knowledge, 2) process or procedural knowledge and 3) knowledge of when and why a process should be used or conditional knowledge. To illustrate,

assume that a student was engaged in solving a particular type of problem--say in mathematics. The student would need to know important declarative knowledge relative to the problem--a specific formula, the relationship between certain principles. The student would also need to know specific problem solving procedures. These might include working backwards from the answer or breaking the problem into smaller component parts. Finally the student would need to know when a given procedure was appropriate to use and when it was not. For example, the problem solving procedure of working backwards is effective when the goal state is clear and the steps in the problem solving process are highly interdependent. However, it is not effective when the problem requires a recasting of the assumed goal state.

Recent research (Doyle, 1983) indicates that rarely, if at all, are students actually provided with direct instruction in the cognitive or metacognitive strategies necessary to perform academic tasks yet such instruction can drastically improve student performance. Instead, content instruction is permeated by an emphasis on factual information. To shift this trend would require a reconceptualization of the curriculum to include specific metacognitive and cognitive strategies. At its core this is a policy issue. As long as central administrators within school districts and curriculum specialists at the local, state and national levels conceive of curriculum as a list of discrete, content specific, factual objectives there is little chance of thinking skills instruction becoming a central part of classroom instruction.

A curriculum which included the teaching of thinking would necessarily have a balance among factual content objectives, metacognitive objectives and cognitive objectives. These objectives would necessarily be inter-related with the metacognitive objectives supporting the cognitive objectives and the cognitive objectives supporting the factual content objectives. Given that most schools and

districts already have an overwhelming number of objectives devoted to factual content, the incorporation of thinking skills objectives will probably mean less "coverage" of content. However, given the changing nature and role of content in modern society (Schwartz and Ogilvy, 1979) less coverage of content in most schools can probably be considered a side benefit of direct instruction in thinking.

## A NARROW VIEW OF ASSESSMENT

Closely related to the barrier of a narrow view of curriculum is that of a narrow view of assessment. In his commissioned study of academic work in American schools, Doyle (1983) found that accountability drives student/teacher interactions. Once students have reached the middle grades, they tend to take seriously only those tasks for which they are held accountable (Carter and Doyle 1982). They become sensitive to those teacher cues which signal accountability. If the teacher (and the textbook and the standardized test) hold students accountable only for factual content knowledge, students will focus their attention on learning factual information even if metacognitive and cognitive strategies are directly taught and are a formal part of the curriculum. In other words, teachers must not only teach metacognitive and cognitive strategies, but they must also assess student competence in these strategies to communicate the message that they are, indeed, valued learning goals. We can not expect students to perceive their intrinsic value. Assessment, then, is inexorably linked with instruction because we tend to learn best that on which we are assessed.

Unfortunately most metacognitive and cognitive strategies do not lend themselves to objective paper/pencil types of assessment. Rather they are most easily assessed through qualitative types of measurement, which spring from ethnographic research, like those suggested by Miles and Huberman (1984). These techniques include unobtrusive and obtrusive observation of students while engaged in specific academic tasks. Such techniques are not without precident in

the classroom. For example, in assessing reading competence, Goodman (1978) recommends the use of "kid watching." Kid watching involves observing, interacting, documenting, and interpreting. Students are observed as they use reading materials in some natural setting. The teacher interacts with students with an eye toward gathering clues as to their use of specific cognitive and metacognitive strategies. The teacher keeps anecdotal records of her interactions with students and uses these to judge student strengths and weaknesses. Assessment, according to Goodman, is not something that occurs only at testing time. Rather, it is an ongoing part of the teaching/learning process.

In a similar vein, Campione and Brown (undated) have developed an assessment technique which they refer to as "dynamic assessment." It can be used on any set of cognitive operations. Building on Vygotsky's concept of "zone of proximal development," their technique involves presenting students with gradually more explicit cues for performing a task. The initial hints are very general, the succeeding ones become progressively more specific and more concrete with the last "hint" actually providing a detailed blueprint for generating a correct answer. In this system the metric of learning efficiency is the number of hints required for the attainment of a correct answer.

The use of more qualitative assessment techniques such as those briefly described above would require a dramatic shift away from the narrow view of assessment as a matter of administering standardized tests, to a broader view of assessment as an array of both qualitative and quantitative techniques. According to Haney (1984) such a shift would not at all violate the original intention of standardized tests. Tracing the history and development of standardized tests in this country, Haney paints a picture of gradual reliance on standardized tests as the major criterion measure of performance. According to Haney, as originally intended, standardized tests were meant to be used as one of many pieces of data

with which to assess student performance. This point is well articulated in the Standards for Educational and Psychological Tests (APA, AERA and NCME, 1974):

> A test score should be interpreted as an estimate of performance under a given set of conditions. It should not be interpreted as some absolute characteristic of the examinee or as something permanent and generalizable to all other circumstances (Standard J1, p.88).

Again, the shift from a narrow view of assessment to a broader perspective is fundamentally a policy issue. Those in positions of authority at the local, state and national levels must issue a clear mandate that assessment techniques should not be comprised primarily of objective, quantitative measures. Instead more holistic and qualitative measures must be legitimized within education. Similarly grading criteria should not focus on knowledge of factual information but must include performance on specific metacognitive and cognitive strategies.

## INVOLVEMENT OF NON-EDUCATOR GROUPS IN PEDAGOGICAL DECISIONS

The last barrier to the implementation of thinking skills instruction is rapidly becoming the most severe. Within many thinking skills programs are found such metacognitive and cognitive strategies as the use of affirmations and visualization. Even though these techniques have a strong cognitive research base (e.g. Sheikh, 1983; Meichenbaum, 1980) they have come under attack from such non-educator groups as the Eagle Forum because of their alleged origin in religious beliefs. As ridiculous as these claims are to researchers and theorists, some conservative non-educator groups have demanded that these techniques be banned within the classroom. Many schools and districts who have field tested and accepted these techniques are adhering to such demands and abandoning the use of these techniques in spite of their proven worth.

Similarly many of the techniques associated with critical thinking have come under the direct attack of non-educator groups. For example, theorists such as Richard Paul (1984) consider a dialectic view of the world as essential to critical thinking. He states that students:

> can be taught comprehensive principles of rational thought. They can learn to consider it natural that people differ in their beliefs and points of view and they can learn to grasp this not as a quaint peculiarity of people but as a tool for learning. They can learn how to learn from others even from their objections, contrary perceptions and differing ways of thinking (Paul, 1984, p.12)

To foster dialectic thinking Paul encourages such classroom practices as:

- having students attend community meetings or watch television programs on which different viewpoints are expressed.
- inviting persons with controversial views to speak in classrooms.
- having students read literature that reflects values and traditions different from theirs.

Again, these practices although supported by a rich body of research are being abandoned by districts because of the objections of conservative groups.

Abandoning effective, research based, instructional practices because of pressure from outside groups is, in effect, allowing laymen to make decisions about pedagogy. This renders education a "non-profession" in which the opinion of untrained professionals is as important (indeed, in this case more important) than that of trained professionals. Certainly non-educator groups have the right and should be encouraged to seek clarification and information about procedures and practices in public schools. But to allow them to have decision making power whether directly or indirectly is ultimately a serious mistake for the welfare of education.

Stemming this mounting tide of conservative, non-educator involvement in pedagogical decisions is clearly another policy issue. Distinctions as to the domain of responsibility of educators versus non-educators must be established and articulated at all policy levels, local, state and federal. No doubt this will be a difficult and emotional process in some schools and districts. However, if education is to fulfill its promise it must be allowed to utilize the resources provided it by the rapidly growing body of research and theory on human cognition without interference from special interest groups who operate from an anti-intellectual perspective.

## CONCLUSION

The teaching of thinking holds great promise for American education. It is a promise seen by John Dewey when he wrote: "The sole direct path to enduring improvement in the methods of instruction and learning consist in centering upon the conditions which exact, promote and test thinking" (1916, p.24). Similarly, in 1961 the National Education Association (NEA) envisioned the promise when it stated:

> Thus in the general area of the development of the ability to think, there is a field for new research of the greatest importance. It is essential that those who have responsibility for management and policy determination in education commit themselves to expansion of such research and to the application of the fruits of this research. This is the context in which the significant answers to such issues as educational technology, length of the school year and content of teacher education must be sought and given (in Rankin, 1964, pp. 14-15).

As the NEA citation indicates, the promise of teaching thinking can be realized only if some significant changes are made and defended at the policy level. In this

paper I have briefly outlined three areas on which immediate action should be taken if thinking skills instruction is to survive within American education.

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